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JUN 13 1968

CURRENT SEASON RECORDS

WATER SUPPLY OUTLOOK FOR MONTANA

and
FEDERAL - STATE - PRIVATE COOPERATIVE SNOW SURVEYS

UNITED STATES DEPARTMENT of AGRICULTURE--SOIL CONSERVATION SERVICE,
and
MONTANA AGRICULTURAL EXPERIMENT STATION

Data included in this report were obtained by the agencies named above in cooperation with Federal, State, and private organizations listed on the inside back cover of this report.

MAY 15, JUNE 1, 1968
and
SPECIAL MEASUREMENTS

TO RECIPIENTS OF WATER SUPPLY OUTLOOK REPORTS:

Most of the usable water in western states originates as mountain snowfall. This snowfall accumulates during the winter and spring, several months before the snow melts and appears as streamflow. Since the runoff from precipitation as snow is delayed, estimates of snowmelt runoff can be made well in advance of its occurrence. Streamflow forecasts published in this report are based principally on measurement of the water equivalent of the mountain snowpack.

Forecasts become more accurate as more of the data affecting runoff are measured. All forecasts assume that climatic factors during the remainder of the snow accumulation and melt season as they affect runoff will add to be an effective average. Early season forecasts are therefore subject to a greater change than those made on later dates.

The snow course measurement is obtained by sampling snow depth and water equivalent at surveyed and marked locations in mountain areas. A total of about ten samples are taken at each location. The average of these are reported as snow depth and water equivalent. These measurements are repeated in the same location near the same dates each year.

Snow surveys are made monthly or semi-monthly from January 1 through June 1 in most states. There are about 1400 snow courses in Western United States and in the Columbia Basin in British Columbia. In the near future, it is anticipated that automatic snow water equivalent sensing devices along with radio telemetry will provide a continuous record of snow water equivalent at key locations.

Detailed data on snow course and soil moisture measurements are presented in state and local reports. Other data or reservoir storage, summaries of precipitation, current streamflow, and soil moisture conditions at valley elevations are also included. The report for Western United States presents a broad picture of water supply outlook conditions, including selected streamflow forecasts, summary of snow accumulation to date, and storage in larger reservoirs.

Snow survey and soil moisture data for the period of record are published by the Soil Conservation Service by states about every five years. Data for the current year is summarized in a West-wide basic data summary and published about October 1 of each year.

PUBLISHED BY SOIL CONSERVATION SERVICE

D. A. WILLIAMS, Administrator

The Soil Conservation Service publishes reports following the principal snow survey dates from January 1 through June 1 in cooperation with state water administrators, agricultural experiment stations and others. Copies of the reports for Western United States and all state reports may be obtained from Soil Conservation Service, Western Regional Technical Service Center, Room 507, 701 N. W. Glisan, Portland, Oregon 97209.

Copies of state and local reports may also be obtained from state offices of the Soil Conservation Service in the following states:

STATE	ADDRESS
Alaska	P. O. Box "F", Palmer, Alaska 99645
Arizona	6029 Federal Building, Phoenix, Arizona 85205
Colorado (N. Mex.)	12417 Federal Building, Denver, Colorado 80202
Idaho	P. O. Box 38, Boise, Idaho 83707
Montana	P. O. Box 98, Bozeman, Montana 59715
Nevada	P. O. Box 4850, Reno Nevada 89505
Oregon	1218 S. W. Washington St., Portland, Oregon 97205
Utah	4012 Federal Building, Salt Lake City, Utah 84111
Washington	360 Federal Office Building, Spokane, Washington 99201
Wyoming	P. O. Box 340, Casper, Wyoming 82602

PUBLISHED BY OTHER AGENCIES

Water Supply Outlook reports prepared by other agencies include a report for California by the Water Supply Forecast and Snow Surveys Unit, California Department of Water Resources, P. O. Box 388, Sacramento, California 95802 --- and for British Columbia by the Department of Lands, Forests and Water Resources, Water Resources Service, Parliament Building, Victoria, British Columbia



WATER SUPPLY OUTLOOK FOR MONTANA

and
FEDERAL - STATE - PRIVATE COOPERATIVE SNOW SURVEYS

Issued by

D. A. WILLIAMS

ADMINISTRATOR
SOIL CONSERVATION SERVICE
WASHINGTON, D.C.

|||||
Released by

A. B. LINFORD

STATE CONSERVATIONIST
SOIL CONSERVATION SERVICE
Bozeman, Montana

In Cooperation with

J. A. ASLESON

DIRECTOR
Montana Agricultural Experiment Station

|||||
Report prepared by

P. E. FARNES, Snow Survey Supervisor

SOIL CONSERVATION SERVICE
P.O. Box 98
Bozeman, Montana 59715

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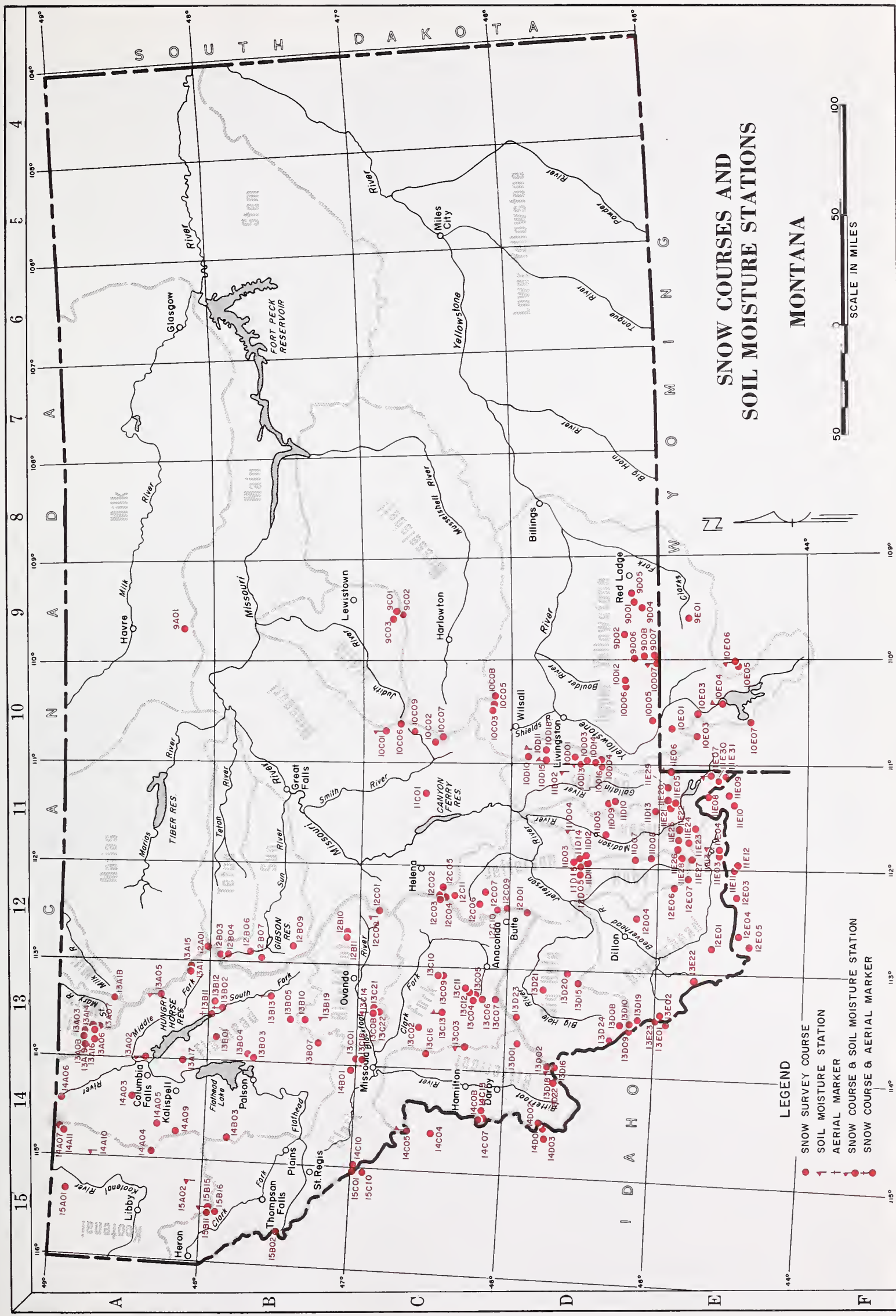
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MONTANA WATER SUPPLY OUTLOOK
June 1, 1968

* * * * *
*
* Cool weather during May delayed snow melt two *
* to three weeks. Many snow courses have a *
* near or above average snow pack for this date. *
*
* * * * *

Low elevation snow is gone in most areas. High elevation snow is just beginning to melt. In general, low elevation streams have already experienced their peak flow of the year, unless heavy rainfall occurs. Major streams with higher elevation headwaters are expected to reach their peak flow between June 10 and June 20.

Final curves for all Montana snow pillows will be published in the October 1, 1968 report.



SNOW COURSES AND
SOIL MOISTURE STATIONS

MONTANA

LEGEND

- SNOW SURVEY COURSE
- SOIL SURVEY STATION
- AERIAL MARKER
- SNOW COURSE & SOIL MOISTURE STATION
- SNOW COURSE & AERIAL MARKER



INDEX to MONTANA SNOW COURSES and SOIL MOISTURE STATIONS

SNOW COURSES

COLUMBIA RIVER BASIN															
Number	Elev.	Sec.	Top.	Range	Record Begin	Measuring Dates	Moos. By	Drainage Basin & Course Name	Number	Elev.	Sec.	Top.	Range	Record Begin	Measuring Dates
KOOTENAI RIVER															
13011	45	36	231	31W	1976	3,4,5,5,6	2	Bronchum Lake	11114	8950	5	4S	3W	1967	3,4,5
13012	40	31	260	30W	1965	3,4,5,5,6	1,12	Clover Meadow	11118	8600	28	9S	2W	1963	3,4,5
13013	30	28	230	30W	1965	3,4,5,5,6	1	Divide	12007	7900	17	4S	3W	1963	3,4,5
13014	30	12	308	30W	1965	3,4,5,5,6	1,12	Madison Mill Creek	12005	7850	14	4S	3W	1967	3,4,5
13015	43	30	308	30W	1965	3,4,5,5,6	1,12	Notch	12006	8500	28	11S	4W	1963	3,4,5
13016	43	30	308	30W	1965	3,4,5,5,6	1,12	Saugger Mine	12005	6960	24	4S	3W	1967	3,4,5
13017	43	30	308	30W	1965	3,4,5,5,6	1,12								
13018	43	30	308	30W	1965	3,4,5,5,6	1,12								
13019	43	30	308	30W	1965	3,4,5,5,6	1,12								
13020	43	30	308	30W	1965	3,4,5,5,6	1,12								
BIG HOLE RIVER															
13021	5161	11	221	25W	1961	3,4,5	1	Abundance Lake	13020	8800	7	3S	11W	1963	3,4,5
13022	5331	31	238	11W	1964	3,4,5	1	Darhoreas Lake	13019	8600	4	8S	16W	1963	3,4,5
13023	5331	31	238	11W	1964	3,4,5	6	Foolthin	13021	8280	11	1S	13W	1963	3,4,5
13024	5001	24	318	10W	1962	3,4,5	1,5	Jahiko Creek	13008	7320	25	7S	16W	1968	3,4,5
13025	5001	24	318	10W	1962	3,4,5	1,5	Pallende Creek	13023	8250	3	2S	19W	1967	3,4,5
13026	5001	24	318	10W	1962	3,4,5	1,5	Sleg-a-melt Lake	13024	8750	29	5S	17W	1968	3,4,5
JEFFERSON RIVER															
13027	7300	8	5W	5W	1962	3,4,5	4	Berry Meadow	12007	7300	8	5W	5W	1962	3,4,5
13028	7700	13	3W	7W	1966	2,3,4,5	1	Copar Mountain	12009	7700	13	3W	7W	1966	2,3,4,5
13029	6500	16	4W	6W	1967	2,3,4,5	4	New Force Creek	12010	6500	16	4W	6W	1967	2,3,4,5
13030	6500	16	4W	6W	1967	2,3,4,5	4	Plenic Grounda	12006	6500	16	4W	6W	1967	2,3,4,5
13031	7200	10	11W	7W	1938	1,2,3,4,5	1	Pitstone Pass	12001	7200	10	11W	7W	1938	1,2,3,4,5
13032	8000	17	7W	5W	1968	1,2,3,4,5	1	Rockar Peak	12011	8000	17	7W	5W	1968	1,2,3,4,5
MADISON RIVER															
13033	8950	21	8S	2W	1962	3,4,5	1	Call Road	11007	8950	21	8S	2W	1962	3,4,5
13034	7200	6	12S	1E	1965	3,4,5,5,6	2	Four Mile	11012	7200	6	12S	1E	1965	3,4,5,5,6
13035	8250	22	11S	3E	1965	3,4,5,5,6	2	Freeseout Lake	11022	8250	22	11S	3E	1965	3,4,5,5,6
13036	6550	22	11S	3E	1934	1,2,3,4,5	3	Haggen Dam	11029	6550	22	11S	3E	1934	1,2,3,4,5
13037	7500	13	6S	1E	1961	3,4,5	1	Jack Creek	11005	7500	13	6S	1E	1961	3,4,5
13038	6100	27	11S	1E	1965	3,4,5,5,6	2	Lion Mountain	11022	6100	27	11S	1E	1965	3,4,5,5,6
13039	8760	23	11S	2W	1967	3,4,5,5,6	2	Lower Twin	11028	8760	23	11S	2W	1967	3,4,5,5,6
13040	7900	12	4S	3W	1965	3,4,5	1	Medison Platenu	11011	7900	12	4S	3W	1965	3,4,5
13041	7750	28	12S	5E	1968	1,2,3,4,5,5,6	1,2	Medison Platenu	11031	7750	28	12S	5E	1968	1,2,3,4,5,5,6
13042	7000	31	12S	1E	1965	3,4,5,5,6	2	North Meadow	11023	7000	31	12S	1E	1965	3,4,5,5,6
13043	7500	24	3S	3W	1961	3,4,5	1	North Meadow	11003	7500	24	3S	3W	1961	3,4,5
13044	7150	33	10S	3E	1965	3,4,5	2	Potomington Park	11021	7150	33	10S	3E	1965	3,4,5
13045	8300	17	10S	3E	1965	3,4,5	2	Sentinel Creek	11020	8300	17	10S	3E	1965	3,4,5
13046	8000	15	12S	1W	1965	3,4,5,5,6	2	Topse Creek	11024	8000	15	12S	1W	1965	3,4,5,5,6
13047	8750	6	12S	2W	1966	3,4,5,5,6	2	Upper West Fork	11027	8750	6	12S	2W	1966	3,4,5,5,6
13048	6700	34	13S	5E	1934	3,4,5,5,6	1,3,6	West Yellowstone	11057	6700	34	13S	5E	1934	3,4,5,5,6
13049	6800	19	14S	5E	1967	3,4,5	2	Whiskey Creek	11030	6800	19	14S	5E	1967	3,4,5
GALLATIN RIVER															
10014	7350	3	5S	6E	1963	1,2,3,4,5,5,6	1	Arch Falls	10014	7350	3	5S	6E	1963	1,2,3,4,5,5,6
11009	8150	9	6S	3E	1963	3,4,5	1	Bear Basin	11009	8150	9	6S	3E	1963	3,4,5
10015	7250	25	10S	6E	1965	1,2,3,4,5,5,6	1	Bridger Bowl	10015	7250	25	10S	6E	1965	1,2,3,4,5,5,6
11029	9000	18	4E	1967	1,2,3,4,5,5,6	2	Carrot Basin	11029	9000	18	4E	1967	1,2,3,4,5,5,6		
10004	6850	4	5S	6E	1965	1,2,3,4,5,5,6	1	Boiling Slide	10004	6850	4	5S	6E	1965	1,2,3,4,5,5,6
10013	6400	22	4S	6E	1962	1,2,3,4,5,5,6	1	Red Meadow	10013	6400	22	4S	6E	1962	1,2,3,4,5,5,6
10013	6860	10	4S	6E	1962	1,2,3,4,5,5,6	1	Red Meadow	10013	6860	10	4S	6E	1962	1,2,3,4,5,5,6
11001	7210	22	6S	3E	1963	1,2,3,4,5,5,6	1	Little Park	11001	7210	22	6S	3E	1963	1,2,3,4,5,5,6
11001	7210	19	11W	7E	1967	1,2,3,4,5,5,6	1	Maynard Creek	11001	7210	19	11W	7E	1967	1,2,3,4,5,5,6
10001	6700	24	3S	6E	1939	1,2,3,4,5,5,6	1	New World	10001	6700	24	3S	6E	1939	1,2,3,4,5,5,6
10016	8100	14	5S	6E	1966	1,2,3,4,5,5,6	1	Showers Falls	10016	8100	14	5S	6E	1966	1,2,3,4,5,5,6
11013	8500	26	9S	2E	1967	3,4,5	1	Traylor Peaks	11013	8500	26	9S	2E	1967	3,4,5
11006	7150	1	11S	5E	1934	1,2,3,4,5	3	Twenty-One Mile	11006	7150	1	11S	5E	1934	1,2,3,4,5
MISSOURI RIVER MAIN STEM															
11001	7950	1	9W	3E	1963	3,4,5	1	Builder Mountain	11001	7950	1	9W	3E	1963	3,4,5
12005	6200	2	8W	5W	1936	1,2,3,4,5	3	Chadman Reservoir	12005	6200	2	8W	5W	1936	1,2,3,4,5
10009	6450	23	12N	8E	1966	3,4,5,5,6	1	Leadman Creek	10009	6450	23	12N	8E	1966	3,4,5,5,6
10007	8000	10	8W	8E	1963	3,4,5	1	Elk Peak	10007	8000	10	8W	8E	1963	3,4,5
10002	7000	19	9W	8E	1938	3,4,5	1	Grasshopper	10002	7000	19	9W	8E	1938	3,4,5
10001	7500	34	13N	8E	1934	3,4,5,5,6	1	Kings Hill	10001	7500	34	13N	8E	1934	3,4,5,5,6
9801	5200	15	28W	16E	1941	3,4,5	7	Rocky Bay	9801	5200	15	28W	16E	1941	3,4,5
12001	6600	16	13W	6E	1961	1,2,3,4,5	3	Stemple Pass	12001	6600	16	13W	6E	1961	1,2,3,4,5
10001	6600	16	13W	6E	1961	1,2,3,4,5	3	Stemple Pass	10001	6600	16	13W	6E	1961	1,2,3,4,5
12002	6800	12	8W	6W	1934	1,2,3,4,5	3	Ten Mile Ridge	12002	6800	12	8W	6W	1934	1,2,3,4,5
12003	6800	13	8W	6W	1934	1,2,3,4,5	3	Ten Mile Ridge	12003	6800	13	8W	6W	1934	1,2,3,4,5
12004	8000	19	8W	5W	1935	1,2,3,4,5	3	Ten Mile Upper	12004	8000	19	8W	5W	1935	1,2,3,4,5
SUN-TETON-MARIAS RIVERS															
13015	6900	4	27N	11W	1964	3,4,5	2	Bodger Pass	13015	6900	4	27N	11W	1964	3,4,5
12806	5200	33	22N	10W	1969	3,4,5	2	Cabin Creek	12806	5200	33	22N	10W	1969	3,4,5
12809	5700	25	20N	10W	1968	3,4,5	1	Five-Ball	12809	5700	25	20N	10W	1968	3,4,5
12801	6000	13	26N	10W	1968	3,4,5	1	Freight Creek	12801	6000	13	26N	10W	1968	3,4,5
12807	7000	20	22N	10W	1969	3,4,5	3	Mont Mountain	12807	7000	20	22N	10W	1969	3,4,5
12804	5700	32	23N	10W	1969	3,4,5	2	Amor Creek	12804	5700	32	23N	10W	1969	3,4,5
12803	6800	17	23N	10W	1969	3,4,5	2	Wrong Ridge	12803	6800	17	23N	10W	1969	3,4,5
JUDITH RIVER															
9002	7100	24	12N	17E	1966	3,4,5	1	Avalanche	9002	7100	24	12N	17E	1966	3,4,5
9001	6100	19	12N	18E	1961	3,4,5	1	Crysaline Lake	9001	6100	19	12N	18E	1961	3,4,5
9003	5600	4	12N	18E	1966	3,4,5	1	Rock Creek	9003	5600	4	12N	18E	1966	3,4,5
10006	8000	20	21N	9E	1963	1,2,3,4,5	6	Sour Park	10006	8000	20	21N	9E	1963	1,2,3,4,5

1/ Numerals 1,2,3,4,5,6 refer to January 1, February 1, March 1, April 1, May 1, May 15 and June 1.

2/ Numerals refer to Agency that makes the snow survey as follows:
1. U. S. Soil Conservation Service
2. U. S. Forest Service
3. U. S. Geological Survey
4. Montana Power Company
5. U. S. Indian Service
6. U. S. National Park Service
7. MSU Agricultural Experiment Station
8. U. of M. School of Forestry
9. U. S. Department of Energy, Mines & Resources
10. U. S. Bureau of Sport, Fisheries & Wildlife
11. Private Cooperator
12. U. S. National Park Service

MISSOURI RIVER BASIN															
Number	Elev.	Sec.	Top.	Range	Record Begin	Measuring Dates	Moos. By	Drainage Basin & Course Name	Number	Elev.	Sec.	Top.	Range	Record Begin	Measuring Dates
KOOTENAI RIVER															
13011	45	36	231	31W	1976	3,4,5,5,6	2	Bronchum Lake	11114	8950	5	4S	3W	1967	3,4,5
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13013	30	28	230	30W	1965	3,4,5,5,6	1	Divide	12007	7900	17	4S	3W	1963	3,4,5
13014	30	12	308	30W	1965	3,4,5,5,6	1,12	Madison Mill Creek	12005	7850	14	4S	3W	1967	3,4,5
13015	43	30	308	30W	1965	3,4,5,5,6	1,12	Notch	12006	8500	28	11S	4W	1963	3,4,5
13016	43	30	308	30W	1965	3,4,5,5,6	1,12	Saugger Mine	12005	6960	24	4S	3W	1967	3,4,5
13017	43	30	308	30W	1965	3,4,5,5,6	1,12								
13018	43	30	308	30W	1965	3,4,5,5,6	1,12								
13019	43	30	308	30W	1965	3,4,5,5,6	1,12					</			

LEGEND

1/ Numerals 1, 2, 3, 4, 5, 5¹/₂, 6 refer to January 1, February 1, March 1, April 1, May 1, May 15 and June 1.

2/ Numernls refer to Agency that makes the snow survey as follows:

1. U. S. Soil Conservation Service
2. U. S. Forest Service
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4. U. S. Geological Survey
5. Montana Power Company
6. U. S. Indian Service
7. U. S. National Park Service
8. U. S. Soil Conservation Service
9. U. S. Bureau of Sport Fisheries & Wildlife
10. U. S. Bureau of Sport Fisheries & Wildlife
11. Private Contractor
12. Soil and Water Conservation District

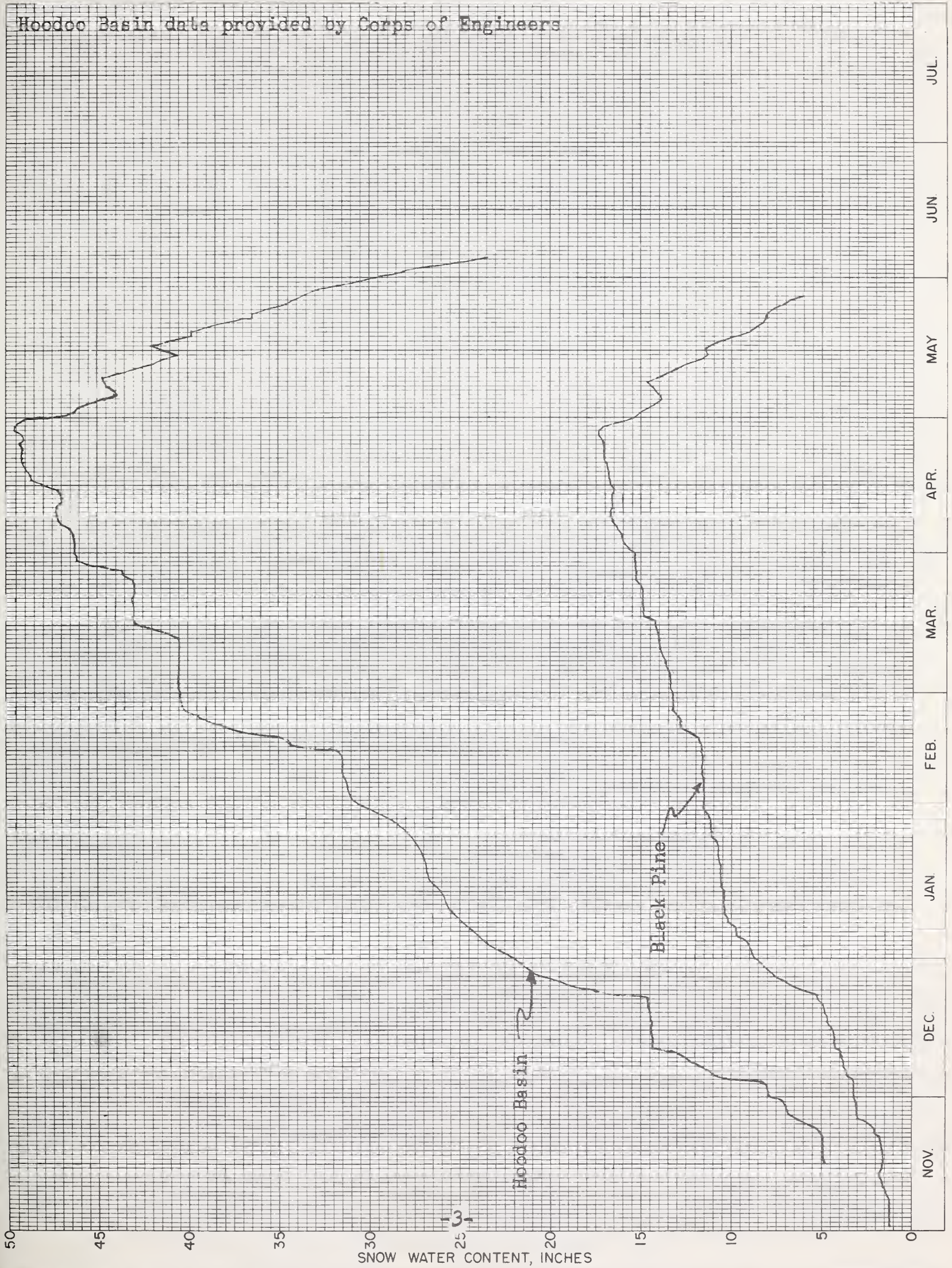
SNOW PILLOW DATA
WATER YEAR 1968

No. _____

Elev. _____

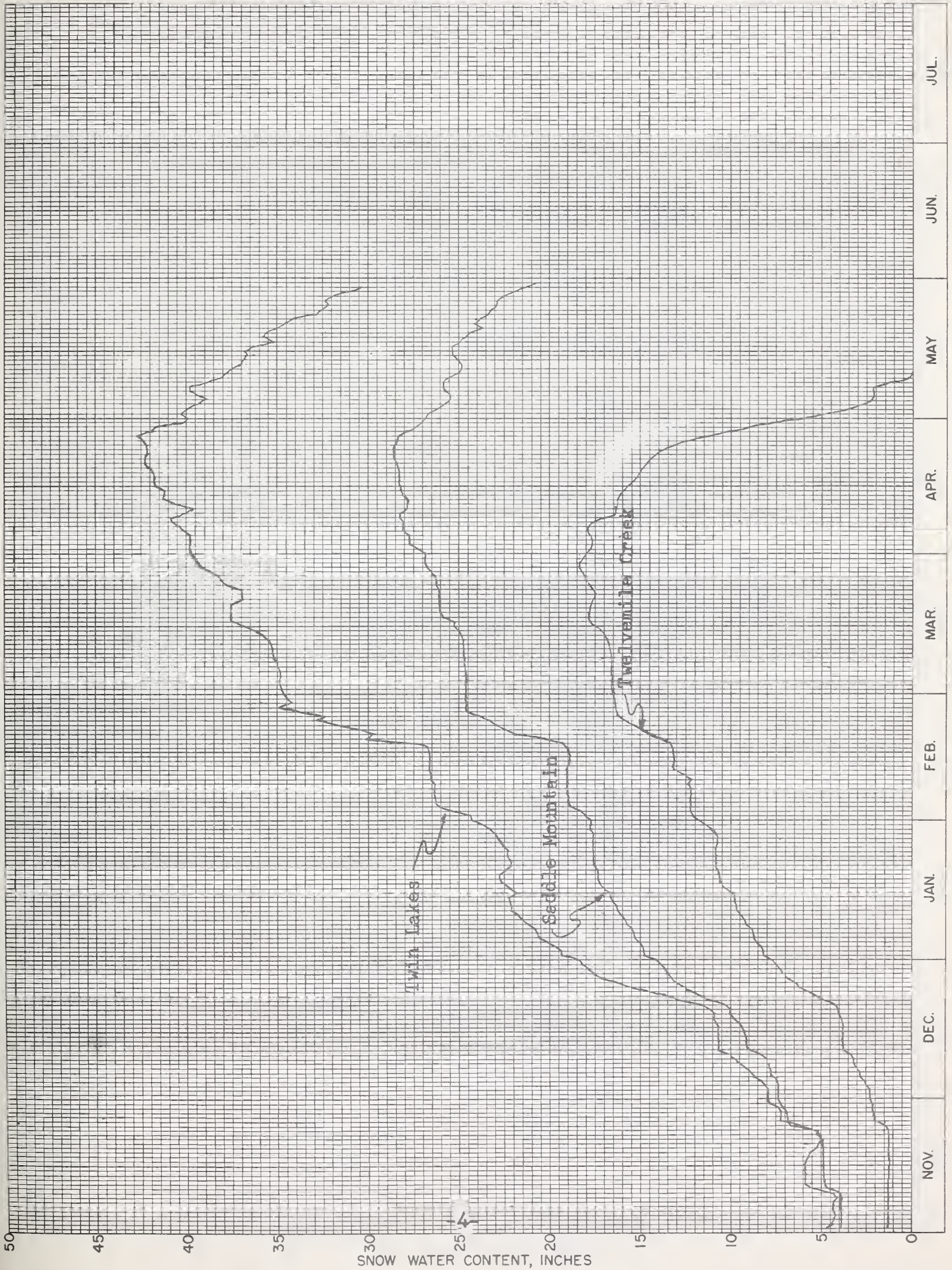
Drainage: CLARK FORK

Hoodoo Basin data provided by Corps of Engineers



SNOW PILLOW DATA
WATER YEAR 1968

No. _____ Elev. _____ Drainage: BITTERROOT



SNOW PILLOW DATA
WATER YEAR 1968

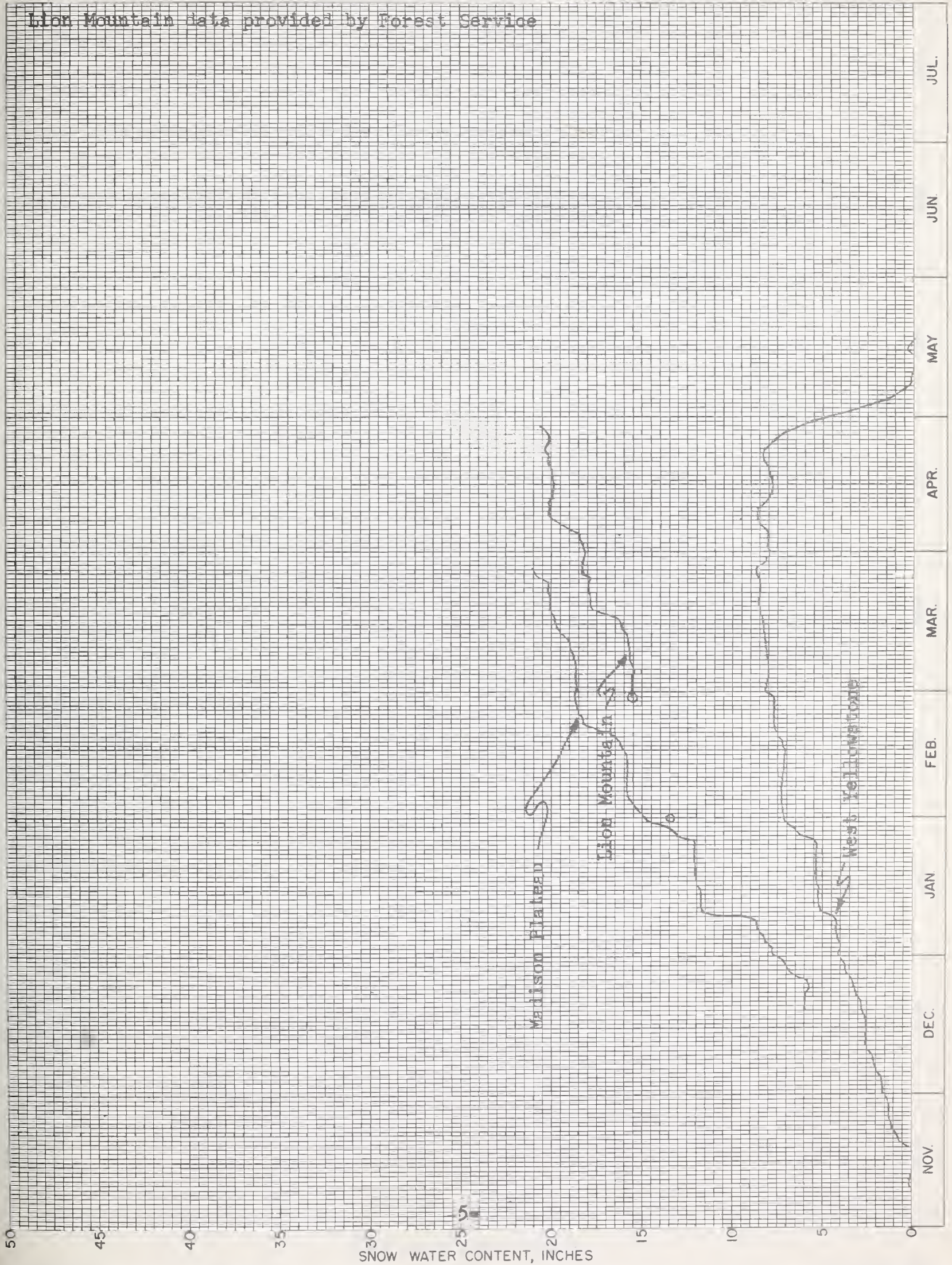
No. _____

Elev. _____

Drainage: _____

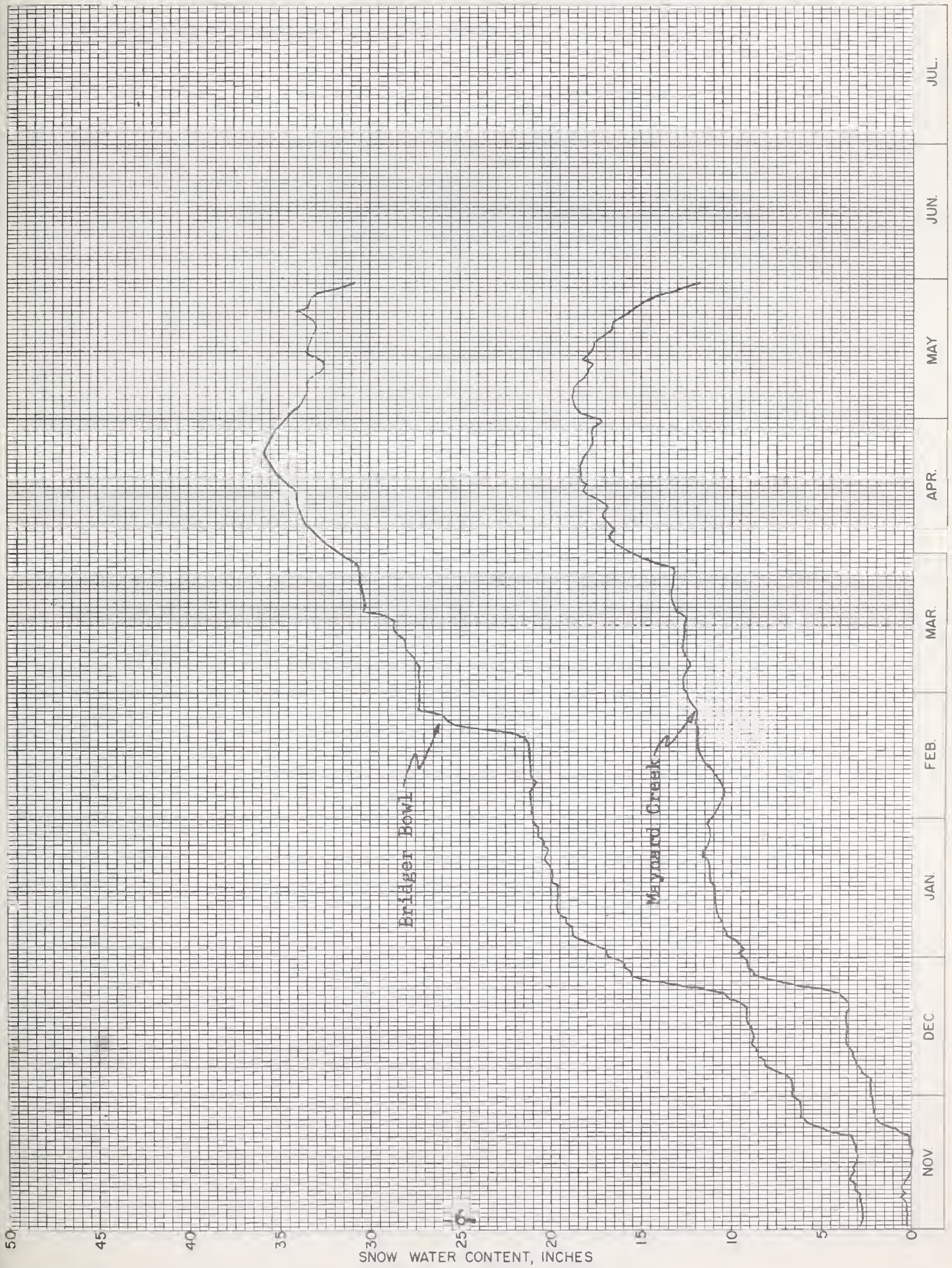
MADISON

Lion Mountain data provided by Forest Service



SNOW FELLOW DATA
WATER YEAR 1968

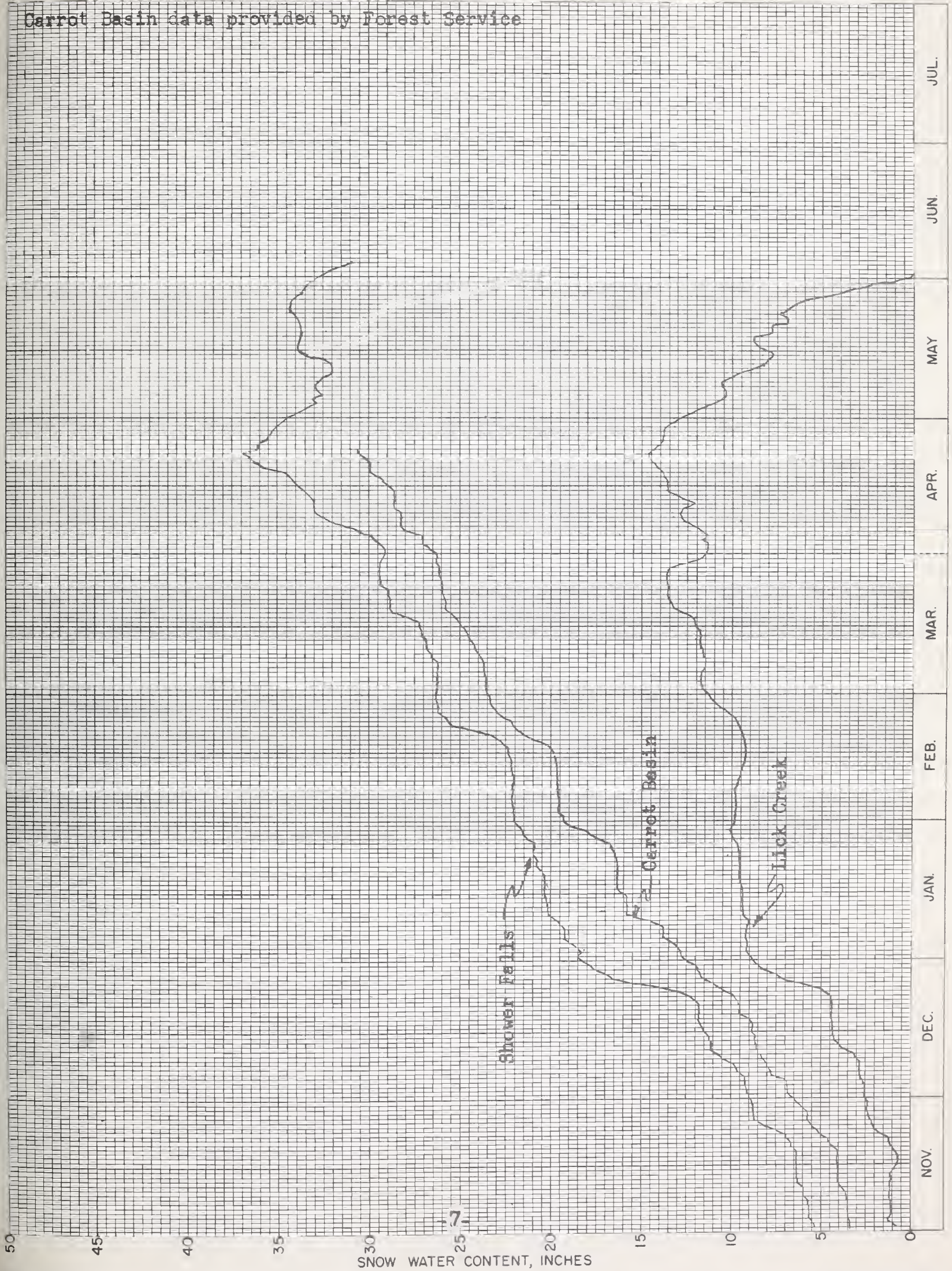
No. _____ Elev. _____ Drainage: GALLATIN



SNOW PILLOW DATA WATER YEAR 1968

No. _____ Elev. _____ Drainage: GALLATIN

Carrot Basin data provided by Forest Service



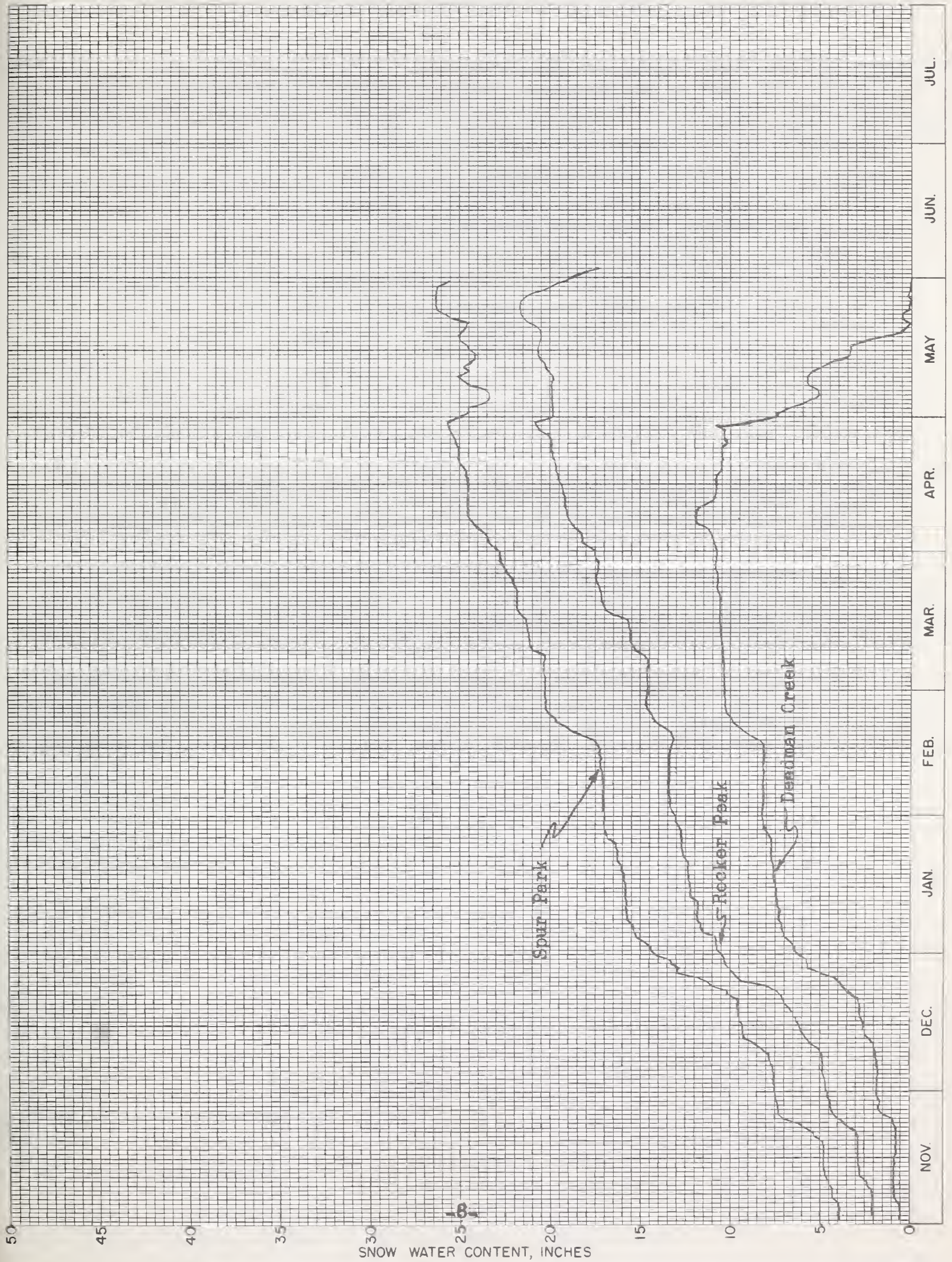
SNOW WATER CONTENT, INCHES

SNOW PILLOW DATA WATER YEAR 1968

No. _____

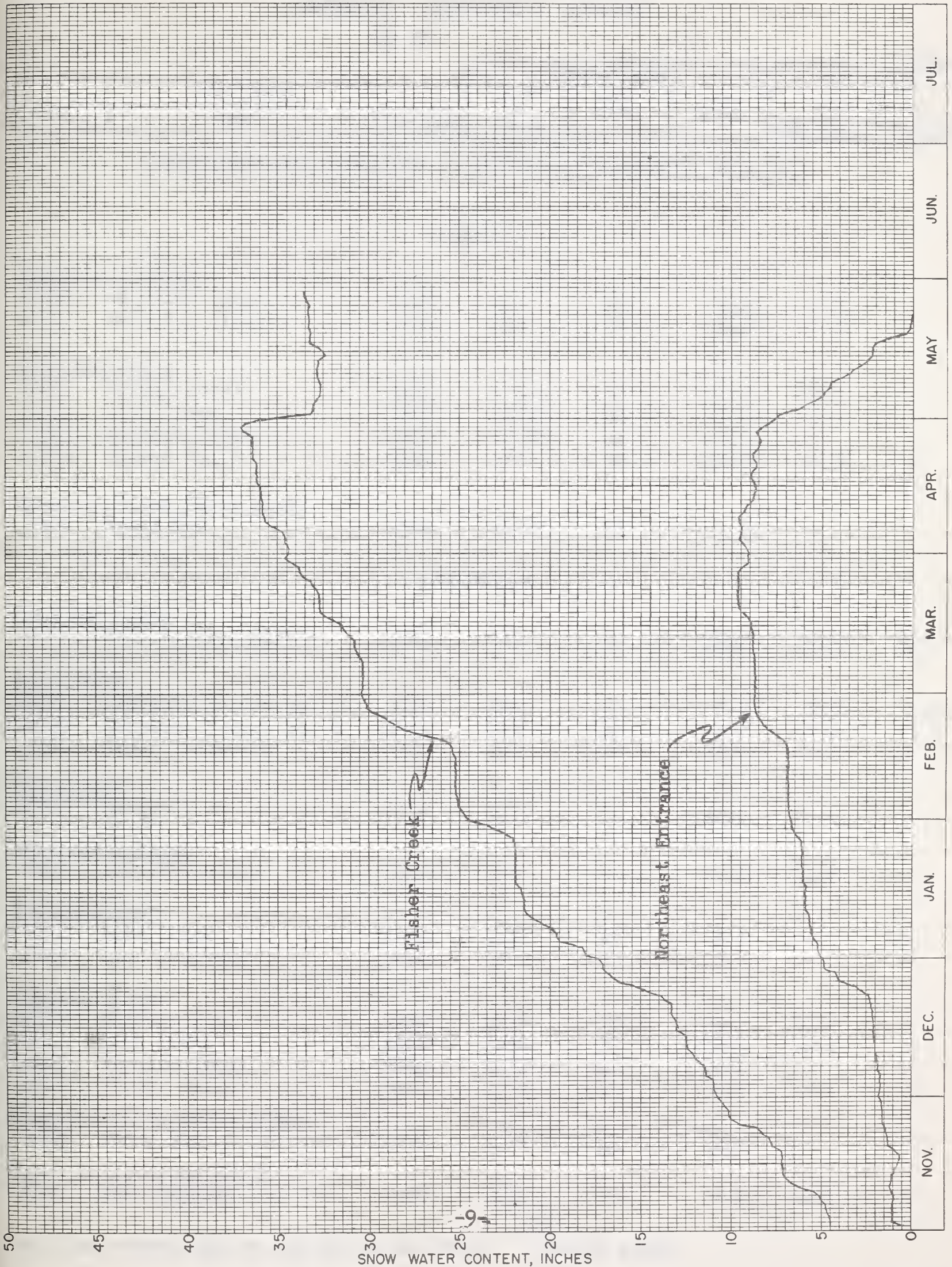
Elev. _____

Drainage: JUDITH-JEFFERSON-MISSOURI



SNOW PILLOW DATA
WATER YEAR 1968

No. _____ Elev. _____ Drainage: YELLOWSTONE



SNOW SURVEY DATA

AS OF

SNOW COURSE			CURRENT DATA			PAST RECORD (Inches)	
			DATE OF SURVEY	SNOW DEPTH	WATER CONTENT	WATER CONTENT	
NO.	NAME	ELEVATION				LAST YEAR	AVERAGE

CORRECTIONS AND ADDITIONS TO PREVIOUSLY PUBLISHED 1968 DATA

January 1

Beaverhead River

11E04	Lakeview Canyon	6930	1/3	27	7.1	5.5	-
11E03	Lakeview Ridge	7400	1/3	25	6.6	5.8	-

Gallatin River

10D15	Bridger Bowl	7250	12/28	67	18.3	8.4	-
10D13	Lick Creek	6860	12/27	38	7.4	3.9	-
10D18	Maynard Creek	6210	12/28	46	10.9	-	-
10D16	Shower Falls	8100	1/2	81	20.8	8.3	-

Missouri River (Main Stem)

9A01	Rocky Boy	4700	12/29	19	4.0	-	-
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February 1

Flathead River

14A03	Hell Roaring Divide	5770	2/1	60	18.2	34.9	22.0*
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Clark Fork

13C21	Lubrecht Forest No. 3	5450	2/4	23	5.4	5.2	5.8*
13C08	Lubrecht Forest No. 6	4040	2/4	11	3.2	3.4	3.6*
13C01	Stuart Mountain	7400	2/3	69	23.6	22.8	21.9*

Bitterroot

14C04	Savage Pass	6600	1/29	54	18.5	20.2	-
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Beaverhead River

11E03	Lakeview Ridge	7400	2/5	36	10.7	11.8	-
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Madison River

11E22	Lake Creek	6100	2/2	29	6.6	-	-
11E28	Lion Mountain	8760	1/31	58	13.6	-	-

Gallatin River

10D15	Bridger Bowl	7250	1/30	68	24.5	20.3	-
10D13	Lick Creek	6860	1/31	37	11.0	8.1	-
10D18	Maynard Creek	6210	1/30	45	16.1	-	-
10D16	Shower Falls	8100	1/31	76	25.3	18.3	-

Missouri River (Main Stem)

9A01	Rocky Boy	4700	1/29	17	5.0	-	-
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Upper Yellowstone River

9D02	West Rosebud	7500	2/7	30	9.8	10.8	-
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SNOW SURVEY DATA

AS OF

SNOW COURSE			CURRENT DATA			PAST RECORD	
			DATE OF SURVEY	SNOW DEPTH	WATER CONTENT	WATER CONTENT	
NO.	NAME	ELEVATION				LAST YEAR	AVERAGE

Corrections and Additions to Previously Published 1968 Data - cont.

March 1

Kootenai River

14A04	Brush Creek	5000	2/28	<u>22</u>	<u>8.1</u>	13.2	12.7*
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Beaverhead River

12D04	Carter Creek	7400	2/28	17	3.6	-	4.0*
11E04	Lakeview Canyon	6930	3/4	<u>37</u>	<u>12.2</u>	13.0	9.6
11E03	Lakeview Ridge	7400	3/4	31	<u>10.0</u>	11.8	8.1

Sun-Teton-Marias Rivers

13A15	Badger Pass	6900	2/27	<u>89</u>	<u>34.0E</u>	42.5	31.0*
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April 1

Kootenai River

14A04	Brush Creek	5000	3/29	<u>24</u>	<u>8.8</u>	15.0	14.3*
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Clark Fork River

13C01	Stuart Mountain	7400	3/30	78	<u>32.0</u>	35.4	32.6
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Beaverhead River

13E22	Dad Creek Lake	8400	4/1	<u>44</u>	<u>14.7E</u>	17.4	12.5*
12E01	White Pine Ridge	8850	4/1	<u>24</u>	<u>6.9E</u>	5.2	5.9

Ruby River

11D08	Clover Meadow	8600	4/1	61	<u>20.7E</u>	21.7	15.0*
12E07	Divide	7900	4/1	<u>34</u>	<u>10.8E</u>	13.1	9.0*
12E06	Notch	8500	4/1	<u>49</u>	<u>16.6E</u>	18.7	12.5*

Big Hole River

13D20	Abundance Lake	8800	3/29	66	22.2	21.2	20.3*
13D19	Darkhorse Lake	8600	4/1	<u>79</u>	<u>28.5E</u>	31.0	26.0*
13D24	Slag-A-Melt Lake	8750	4/1	<u>70</u>	<u>25.5E</u>	-	-

Madison River

11D07	Call Road	8050	4/1	<u>39</u>	<u>13.0E</u>	14.7	10.2*
11E30	Whiskey Creek	6800	3/28	<u>50</u>	<u>17.0</u>	26.0	-

Gallatin River

10D14	Arch Falls	7350	4/1	<u>48</u>	16.5	16.8	12.1*
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E - Estimated data - no survey.

SNOW SURVEY DATA

AS OF

SNOW COURSE			CURRENT DATA			PAST RECORD (Inches)	
			DATE OF SURVEY	SNOW DEPTH	WATER CONTENT	WATER CONTENT	
NO.	NAME	ELEVATION				LAST YEAR	AVERAGE

Corrections and Additions to Previously Published 1968 Data - cont.

April 1 - cont.

Missouri River (Main Stem)

12C10	Nez Perce Creek	6500	4/1	22	6.6	8.7	-
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Sun-Teton-Marias Rivers

13A15	Badger Pass	6900	4/5	100	41.6	43.3	36.0*
12B07	Goat Mountain	7000	3/31	27	8.1	15.6	12.3

Judith River

9C01	Crystal Lake	6100	4/1	42	16.2	19.1	12.2
9C03	Rock Creek	5600	4/1	29	11.4	12.3	-

Upper Yellowstone River

9D08	White Mill	8700	3/29	78	27.1	36.6	-
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May 1

Beaverhead River

13E22	Dad Creek Lake	8400	5/1	46	15.5E	18.6	14.5*
12E01	White Pine Ridge	8850	5/1	25	7.4E	7.5	7.2*

Ruby River

11D08	Clover Meadow	8600	5/1	60	21.8E	23.6	17.3*
12E07	Divide	7900	5/1	33	10.5E	14.2	9.4*
12E06	Notch	8500	5/1	47	16.8E	20.5	15.0*

Big Hole River

13D20	Abundance Lake	8800	4/30	62	24.4	24.3	23.6*
13D19	Darkhorse Lake	8600	5/1	83	31.5E	32.4	28.4*
13D21	Foolhen	8280	5/10	50	20.0	23.9	20.8*
13D24	Slag-A-Melt Lake	8750	5/1	76	29.0E	-	-

Madison River

11D07	Call Road	8050	5/1	40	13.5E	16.0	12.0*
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E - Estimated data - no survey.

SNOW SURVEY DATA

AS OF MAY 15, 1968

(Inches)

SNOW COURSE			CURRENT DATA			PAST RECORD	
NO.	NAME	ELEVATION	DATE OF SURVEY	SNOW DEPTH	WATER CONTENT	WATER CONTENT	
						LAST YEAR	AVERAGE

COLUMBIA RIVER BASIN

KOOTENAI RIVER

15B11	Baree Creek	5500	5/15	68	33.6	65.5	42.3*
15B16	Baree Midway	4600	5/15	27	12.4	44.4	-
15B15	Baree Trail	3800	5/15	0	0.0	0.0	-
BC 11	Glacier	4100	5/14	61	26.7	40.7	19.3*
14A11	Graves Creek	4300	5/15	14	5.2	19.5	-
BC 43	Gray Creek	5100	5/13	45	17.2	27.9	17.6*
BC 33	Kicking Horse	5400	5/14	34	12.1	20.5	7.8*
BC 32	Marble Canyon	5000	5/14	30	10.4	13.4	8.7*
BC 10B	Morrissey Ridge	6100	5/13	42	18.3	41.6	-
15A01	Red Mountain	6000	5/14	34	13.7	26.8	18.4*
BC 20A	Sullivan Mine	5100	5/15	16	6.1	18.0	6.8*
14A07	Weasel Divide	5450	5/15	66	28.0	43.2	32.6*

FLATHEAD RIVER

14A03	Hell Roaring Divide	5770	5/14	47	21.4	41.8	25.5*
13B07	North Fork Jocko	6330	5/15	88	38.7	58.2	45.0*

CLARK FORK RIVER

13C13	Black Pine	7100	5/14	25	10.4	21.1	-
13C13	Black Pine Pillow	7100	5/14	SP	11.6	22.8	-
14C10	Heart Lake Trail	4800	5/16	10	4.4	-	-
15C10	Hoodoo Basin	6000	5/16	98	44.8	-	-
15C10	Hoodoo Basin Pillow	6000	5/16	SP	42.1	58.6	-
15C01	Hoodoo Creek	5900	5/16	88	39.4	-	-
13C04	Intergaard	6450	5/15	22	7.4	12.7	-
15B02	Lookout	5250	5/16	49	22.7	41.1	-
13C03	Skalkaho Summit	7260	5/14	54	23.4	33.1	23.0*
13C01	Stuart Mountain	7400	5/11	66	30.4	40.5	23.5*
14B01	TV Mountain	6800	5/11	42	16.9	20.6	-

BITTERROOT RIVER

13D02	Gibbons Pass	7100	5/14	35	15.6	28.8	20.1*
14C07	Lost Horse	5940	5/14	57	25.8	36.3	-
13D22	Saddle Mountain	7940	5/14	60	27.0	36.6	-
13D22	Saddle Mountain Pillow	7940	5/14	SP	25.2	-	-
14C13	Twelvemile Creek	5600	5/14	2	1.1	-	-
14C13	Twelvemile Creek Pillow	5600	5/14	SP	0.1	-	-
14C08	Twin Lakes	6510	5/14	87	40.0	49.3	-
14C12	Twin Lakes Pillow	6400	5/14	SP	37.0	-	-

SP - Snow pillow observation - water content only.

NOTE: ALL AVERAGES BASED ON 1948-1962 (15 YEAR PERIOD). *ADJUSTED AVERAGE

SNOW SURVEY DATA

AS OF MAY 15, 1968

SNOW COURSE			CURRENT DATA			PAST RECORD	
NO.	NAME	ELEVATION	DATE OF SURVEY	SNOW DEPTH	WATER CONTENT	WATER CONTENT	
						LAST YEAR	AVERAGE

MISSOURI RIVER BASIN

JEFFERSON RIVER

12C09	Copper Mountain	7700	5/15	32	10.8	20.5	-
12C11	Rocker Peak	8000	5/16	44	17.2	-	-
12C11	Rocker Peak Pillow	8000	5/16	SP	20.6	-	-

MADISON RIVER

11E07	West Yellowstone Pillow	6700	5/15	SP	0.3	8.4	-
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GALLATIN RIVER

10D14	Arch Falls	7350	5/13	46	17.9	19.0	-
10D15	Bridger Bowl	7250	5/15	90	39.7	38.2	-
10D15	Bridger Bowl Pillow	7250	5/15	SP	37.5	36.1	-
10D04	Devil's Slide	8100	5/13	77	33.7	32.4	25.0*
10D03	Hood Meadow	6600	5/13	22	8.5	10.5	-
10D13	Lick Creek	6860	5/13	21	8.0	11.4	-
10D13	Lick Creek Pillow	6860	5/13	SP	8.0	9.8	-
10D18	Maynard Creek	6210	5/15	46	20.6	18.5	-
10D18	Maynard Creek Pillow	6210	5/15	SP	17.7	15.4	-
10D16	Shower Falls	8100	5/13	78	36.3	35.5	-
10D16	Shower Falls Pillow	8100	5/13	SP	31.9	33.1	-

MISSOURI RIVER (Main Stem)

10C09	Deadman Creek	6450	5/14	12	5.0	15.0	-
10C09	Deadman Creek Pillow	6450	5/14	SP	3.5	-	-
10C01	Kings Hill	7500	5/14	44	17.5	23.6	-

JUDITH RIVER

10C06	Spur Park	8000	5/14	61	25.6	36.0	-
10C06	Spur Park Pillow	8000	5/14	SP	23.8	35.3	-

UPPER YELLOWSTONE RIVER

9D01	Camp Senia	7890	5/15	34	9.7	12.4	-
9D07	Cooke Station	8150	5/14	40	17.2	28.8	-
9D06	Fisher Creek	9100	5/14	82	37.6	54.3	-
9D06	Fisher Creek Pillow	9100	5/14	SP	32.4	54.4	-
10D07	Northeast Entrance	7400	5/14	7	2.6	10.6	-
10D07	Northeast Entrance Pillow	7350	5/14	SP	2.3	10.6	-
9D04	Timberline Creek	8850	5/15	53	17.8	24.2	-
9D08	White Mill	8700	5/14	61	26.4	40.3	-

SP - Snow pillow observation - water content only.

NOTE: ALL AVERAGES BASED ON 1948-1962 (15 YEAR PERIOD). -14- ADJUSTED AVERAGE

SNOW SURVEY DATA

AS OF JUNE 1, 1968

SNOW COURSE			CURRENT DATA			PAST RECORD (Inches)	
NO.	NAME	ELEVATION	DATE OF SURVEY	SNOW DEPTH	WATER CONTENT	WATER CONTENT	
						LAST YEAR	AVERAGE

COLUMBIA RIVER BASIN

KOOTENAI RIVER

BC 11	Glacier	4100	5/30	32	15.5	26.2	8.4*
14A11	Graves Creek	4300	5/28	0	0.0	4.6	-
BC 43	Gray Creek	5100	5/29	22	9.2	20.1	9.5*
BC 32	Marble Canyon	5000	5/30	0	0.0	3.4	1.4*
15A01	Red Mountain	6000	5/28	12	5.4	10.2	6.6*
14A07	Weasel Divide	5450	5/28	38	18.2	31.5	19.0*

FLATHEAD RIVER

13B03	Big Creek	6750	5/28	105	52.0	49.6	42.5*
13A02	Desert Mountain	5600	5/28	0	0.0	0.0	-
13B04	Fatty Creek	5500	5/28	20	9.6	14.8	6.0*
14A03	Hell Roaring Divide	5770	5/29	23	11.1	23.3	13.5*
13B07	North Fork Jocko	6330	5/29	58	29.7	42.0	30.3*

CLARK FORK RIVER

13C13	Black Pine	7100	5/28	10	4.6	8.0	-
13C13	Black Pine Pillow	7100	5/28	SP	6.0	10.2	-
14C10	Heart Lake Trail	4800	5/28	0	0.0	9.4	-
15C10	Hoodoo Basin	6000	5/28	69	35.4	46.3	-
15C10	Hoodoo Basin Pillow	6000	5/28	SP	32.8	40.2	-
15C01	Hoodoo Creek	5900	5/28	64	31.2	47.6	-
15B02	Lookout	5250	5/29	22	11.0	22.8	-
13C03	Skalkaho Summit	7260	5/28	39	18.8	24.3	14.1*
13C01	Stuart Mountain	7400	5/30	49	24.4	20.3	20.4*
14B01	TV Mountain	6800	5/30	23	10.0	8.0	-

BITTERROOT RIVER

13D02	Gibbons Pass	7100	5/31	14	6.4	15.4	6.7*
14C07	Lost Horse	5940	5/30	37	18.2	26.6	-
13D22	Saddle Mountain	7940	5/31	43	20.6	25.7	-
13D22	Saddle Mountain Pillow	7940	5/31	SP	20.0	-	-
14C13	Twelvemile Creek	5600	5/30	0	0.0	-	-
14C13	Twelvemile Creek Pillow	5600	5/30	SP	0.0	-	-
14C08	Twin Lakes	6510	5/30	64	32.4	39.0	-
14C12	Twin Lakes Pillow	6400	5/31	SP	29.6	-	-

SP - Snow pillow observation - water content only.

STATE OF NEW YORK

IN SENATE

January 1, 1901

REPORT

OF THE

COMMISSIONERS OF THE LAND OFFICE

FOR THE YEAR 1900

ALBANY:

WEDDERBURN, BROS. & CO., PRINTERS

1901

NEW YORK:

WEDDERBURN, BROS. & CO., PRINTERS

1901

NEW YORK:

WEDDERBURN, BROS. & CO., PRINTERS

1901

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WEDDERBURN, BROS. & CO., PRINTERS

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WEDDERBURN, BROS. & CO., PRINTERS

1901

NEW YORK:

WEDDERBURN, BROS. & CO., PRINTERS

1901

NEW YORK:

WEDDERBURN, BROS. & CO., PRINTERS

1901

NEW YORK:

SNOW SURVEY DATA

AS OF JUNE 1, 1968

(Inches)

SNOW COURSE			CURRENT DATA			PAST RECORD	
			DATE OF SURVEY	SNOW DEPTH	WATER CONTENT	WATER CONTENT	
NO.	NAME	ELEVATION				LAST YEAR	AVERAGE

MISSOURI RIVER BASIN

JEFFERSON RIVER

12C11	Rocker Peak	8000	6/3	23	10.2	-	-
12C11	Rocker Peak Pillow	8000	6/3	SP	16.9	-	-

MADISON RIVER

11E07	West Yellowstone Pillow	6700	6/1	SP	0.0	0.0	-
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GALLATIN RIVER

10D14	Arch Falls	7350	6/4	32	14.4	9.0	-
10D15	Bridger Bowl	7250	5/31	73	35.9	27.2	-
10D15	Bridger Bowl Pillow	7250	5/31	SP	30.8	22.6	-
10D04	Devil's Slide	8100	6/4	72	33.2	24.0	21.0*
10D03	Hood Meadow	6600	6/4	1	0.5	-	-
10D13	Lick Creek	6860	6/1	0	0.0	0.0	-
10D13	Lick Creek Pillow	6860	6/1	SP	0.0	0.0	-
10D18	Maynard Creek	6210	5/31	20	9.0	4.3	-
10D18	Maynard Creek Pillow	6210	5/31	SP	9.9	4.1	-
10D16	Shower Falls	8100	6/4	74	37.5	27.0	-
10D16	Shower Falls Pillow	8100	6/4	SP	31.0	23.6	-

MISSOURI RIVER (Main Stem)

10C09	Deadman Creek	6450	5/31	0	0.0	0.0	-
10C09	Deadman Creek Pillow	6450	5/31	SP	0.0	-	-
10C01	Kings Hill	7500	5/31	35	15.6	15.5	-

JUDITH RIVER

10C06	Spur Park	8000	5/31	57	25.1	29.2	-
10C06	Spur Park Pillow	8000	5/31	SP	25.2	27.4	-

UPPER YELLOWSTONE RIVER

9D01	Camp Senia	7890	5/28	28	8.9	3.9	-
9D07	Cooke Station	8150	5/29	30	13.6	18.2	-
9D06	Fisher Creek	9100	5/29	77	37.2	48.3	-
9D06	Fisher Creek Pillow	9100	5/29	SP	34.0	47.2	-
10D07	Northeast Entrance	7400	5/29	0	0.0	0.9	-
10D07	Northeast Entrance Pillow	7350	5/29	SP	0.0	0.0	-
9D04	Timberline Creek	8850	5/28	46	19.5	12.4	-
9D08	White Mill	8700	5/29	56	26.3	33.2	-

SP - Snow pillow observation - water content only.

-16-

NOTE: ALL AVERAGES BASED ON 1948-1962 (15 YEAR PERIOD). *ADJUSTED AVERAGE

SOIL MOISTURE DATA

AS OF JUNE 1, 1968

(Inches)

SOIL MOISTURE STATION			SOIL PROFILE		CURRENT DATA		PAST RECORD	
NO.	NAME	ELEVATION	DEPTH	FIELD CAPACITY	DATE OF SURVEY	SOIL MOISTURE	LAST YEAR	** AVERAGE

COLUMBIA RIVER BASIN

Kootenai

15B15M	Baree Trail	3800	48	7.5				
14A10M	Murphy Lake R. S.	3000	48	22.6	5/28	20.2	21.1	-
15A02M	Raven R. S.	3050	48	23.0				

Flathead

13A02M	Desert Mountain	5600	54	8.4	5/28	9.2	9.8	8.9
13A05M	Marias Pass	5250	54	6.5	5/31	5.5	6.2	5.9

Clark Fork

13C13M	Black Pine	7100	48	10.0	5/28	8.5	9.2	-
13B19M	Seeley Lake R. S.	4030	48	11.9				
13C03M	Skalkaho Summit	7260	48	10.8	5/28	10.0	10.2	-

Bitterroot

13D18M	Gibbons Pass	7100	48	7.1	5/31	7.2	6.8	7.0
14C05M	Lolo Pass	5250	48	10.6	5/29	10.0	9.6	9.9

MISSOURI RIVER BASIN

Beaverhead

11E13M	Lakeview	6700	48	15.3				
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Madison

10D04M	Red Bluff	4800	40	4.7	6/3	2.1	1.8	2.3
11E07M	West Yellowstone	6700	48	6.5	5/28	3.1	3.2	-

Gallatin

10D15M	Bridger Bowl	7250	48	17.0	5/31	17.0	15.5	-
11D02M	College Site	4856	54	14.5	6/4	13.5	10.4	11.1
10D13M	Lick Creek	6860	48	18.8	6/3	17.1	19.2	-
11E06M	Twenty-One Mile	7150	48	10.0	5/29	9.7	10.0	9.9

Missouri Main Stem

10C01M	Kings Hill	7420	48	11.8	5/31	10.0	11.2	10.9
13C08M	Stemple Pass	6350	48	5.9	5/31	5.2	5.1	5.2

Yellowstone

10D11M	Battle Ridge	6020	48	17.6	5/31	16.8	16.5	15.5
10D07M	Northeast Entrance	7350	48	9.4	6/2	9.4	9.1	9.1

**AVERAGE FOR PERIOD OF RECORD

RESERVOIR STORAGE DATA

AS OF MAY 31, 1968

(1000 Acre Feet)

BASIN	RESERVOIR	USEABLE CAPACITY	USEABLE STORAGE		
			THIS YEAR	LAST YEAR	AVERAGE

COLUMBIA RIVER BASIN

Flathead	Hungry Horse	3,428.0	2,817.0	2,076.0	2,793.6**
	Flathead Lake	1,791.0	1,415.0	1,400.0	1,559.2
	Camas (Sum of 4)	45.2	27.8	38.5	41.7
	Mission Valley (Sum of 8)	100.3	59.8	44.6	68.8
Clark Fork	Georgetown Lake	31.0	27.3	22.0	24.0
	Noxon Rapids	334.6	-	-	-
Bitterroot	Como	34.9	24.7	24.2	29.0
	Painted Rocks	31.7	33.0	33.4	32.4

MISSOURI RIVER BASIN

Beaverhead	Clark Canyon	328.9	153.3	120.7	-
	Lima	84.0	79.4	43.9	58.1
Ruby	Ruby	38.8	-	-	35.4**
Madison	Hebgen Lake	377.5	317.4	281.4	270.5
	Ennis Lake	41.0	40.2	38.6	35.6
Gallatin	Middle Creek	8.0	6.9	6.6	6.4**
Missouri	Canyon Ferry	2,043.0	1,395.0	1,347.0	1,756.8**
	Hauser & Helena	61.9	61.9	59.6	53.2
	Lake Helena	10.4	10.4	9.6	7.6
	Holter Lake	81.9	79.8	74.0	72.8
	Smith River	10.7	11.4	10.8	8.7
	Ackley Lake	5.8	-	-	4.2
	Durand	7.0	7.0	6.6	6.4
	Martinsdale	23.1	14.7	14.9	15.0
	Deadman's Basin	72.2	53.4	68.2	46.8**
	Fort Peck	19,410.0	16,840.0	16,010.0	11,651.7
	Gibson	105.0	66.9	94.3	94.4
	Willow Creek	32.3	26.3	21.8	27.0
Marias	Pishkun	32.0	31.2	32.2	28.4
	Lower Two Medicine	-	-	-	9.0
	Four Horns	19.2	-	12.1	11.6
	Swift	30.0	22.4	-	29.6
	Lake Frances	112.0	77.3	96.8	104.4
Milk	Tiber	1,347.0	467.0	632.8	729.5**
	Fresno	127.2	98.7	127.8	107.1
	Nelson	66.8	41.0	53.5	40.7
	Lake Sherburne	66.1	18.8	14.0	35.2
Yellowstone	Mystic Lake	20.8	1.5	11.7	6.3
	Tongue River	68.0	38.5	53.8	28.7
	Cooney	27.5	19.4	17.2	17.9**
Big Horn	Yellowtail	1,356.0	672.1	773.8	-

NOTE: ALL AVERAGES BASED ON 1948-1962 (15 YEAR PERIOD). **AVERAGE FOR PERIOD OF RECORD

Agencies and Organizations Cooperating in Montana Snow Surveys

U. S. Forest Service
Region I, Missoula, Montana
Montana Forests and Ranger
Districts

U. S. Geological Survey
Helena, Montana
Portland, Oregon

U. S. Army Corps of Engineers
Portland, Oregon
Seattle, Washington
Walla Walla, Washington
Omaha, Nebraska

U. S. Indian Irrigation Service
St. Ignatius, Montana

U. S. Weather Bureau
Helena, Montana
Portland, Oregon
Kansas City, Missouri

U. S. Bureau of Sports Fisheries
and Wildlife
Red Rock Lakes Refuge
Monida, Montana

U. S. Bureau of Reclamation
Billings, Montana
Boise, Idaho

U. S. Bonneville Power Administration
Portland, Oregon

U. S. Soil Conservation Service
Montana, Wyoming, Idaho

Soil and Water Conservation Districts
Montana Counties

U. S. National Park Service
Yellowstone National Park
Glacier National Park

Montana Power Company
Butte, Montana

Montana Water Resources Board
Helena, Montana

North Montana Branch Station
Agricultural Experiment Station
Havre, Montana

Montana State University
Agricultural Experiment Station
Bozeman, Montana

University of Montana
School of Forestry
Missoula, Montana

Water Rights Branch, Dept. of
Lands and Forests
Victoria, British Columbia

Department of Energy, Mines and
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